

Consider All Options and Win the FTTx Game

By: Tom Warren, Applications Engineer, Clearfield Inc.

When sports fans sit down to enjoy watching their favorite team, they cheer for a hard-fought win. It's the same mindset for cable operators that seek to play on the FTTx field. From finding the right technical solution for the network environment, to being hampered by high labor costs, these and other fiber delivery challenges can make it difficult for some service providers to stay in the fiber game. Despite these challenges, research firm Vertical Systems Group reported that cable operators are the fastest growing segment in the Ethernet market. That trajectory will continue as the demand for deep fiber projects remain a high priority for the cable/MSO market in the next year. With the race to capture subscribers, cable operators and service providers cannot afford to be on the sidelines and must identify ways to reduce the time and capital required to rollout FTTx networks. So, where can cable operators and fiber providers look to solve these challenges and stay in the fiber game?

Let's start with **labor**. Often the highest budget item, the resources allotted for labor on fiber network deployments can quickly command up to 60 percent of the overall project cost. The last mile fiber "drop" is the final, critical connection made from the service provider to the subscriber. In order to lower the labor cost of this last mile connection, the provider should implement plug-and-play solutions that save time and money by minimizing splicing at the drop. Using this approach, cable operators can rely on less experienced labor to speed fiber rollouts, connecting twice as many homes and businesses to the network as opposed to a fully spliced drop network. This approach utilizes the services of highly-skilled splicing technicians where they fit best--installing high-count fibers required back in the core of the network.

Product and design **modularity** are key to providers creating the network that best serves their customers, while ensuring they enjoy savings on labor and time to repair with increased speed of deployment. Modular product designs will offer space-saving designs as well as a variety of drop cable options. They also make restoral quick, easy and offer a significant savings on labor costs and repair time. For example, if the feeder cable assembly is damaged, but the terminal remains intact, the damaged feeder tail can be replaced separately. Conversely, if a port on a terminal is damaged and the feeder tail is intact, only the terminal needs to be replaced. In certain situations, such as in rural, longer-distance drops or in situations where a ducted solution is cost prohibitive, a flat drop cable is an economical solution and can be used in an aerial or direct-bury application or in conventional ducts. Cable operators can play in the fiber game by considering a variety of drops for FTTx deployments, including the following options:

- *Cable in Conduit (CIC)* an application in which the fiber is already installed into the duct, thus eliminating the need for the added labor cost;
- *Connectorized Flat Drop Cable* which can be installed into a larger style duct or direct buried;
- *Kevlar Reinforced Cable* a small, 900um cable signature that is ideal for slack storage since all unused fiber is stored at the customer premise; and the
- *Flexible Drop* ideal for shorter drops where more handling and slack storage is required.

Another important element of an FTTx build is the Fiber Distribution Hub (FDH), or cabinet. Many providers are missing out on an opportunity to maximize the functionality of the cabinet to lower first install costs, increase turn up time and create an environment of better fiber protection and access. The FDH houses optical splitters and distributes incoming feeder cables from the central office, or head-end,

to outgoing distribution cables throughout the wire center. The FDH is generally configured with 100-foot-long stub cables to reach a vault location where fibers can be spliced to the carrier's fiber cable. But adding any length of cable stub to a FDH cabinet adds material cost. A better way is to deploy a solution that eliminates the need for long FDH cable stubs, the vault and the splice case. ***Moving the splicing of feeder and distribution cables inside the FDH cabinet*** is an ideal design option for implementing cost reduction--shortening the traditional 100-foot stub length to a 10- to 20-foot service loop to allow the individual splice trays inside the FDH to be pulled out to the splice area. By removing the vault and the splice case, inventory items are reduced and labor steps eliminated, resulting in one to two hours of labor savings per FDH, saving both time and money.

Not to be overlooked are the ***demands of the last mile environment*** and delivering the final connection point which turns on the home, business or apartment building. Network design at the last mile requires the service provider to address various factors influenced by location – rural versus urban; ground type and whether it's rock, soil, clay or sand. For instance, trenching isn't the same in every community – there may be sand in Florida, clay in Virginia and silt in Alaska. Each individual characteristic will indicate the architecture that is best suited to deliver fiber. To ensure cable operators are kept in the game when it comes to fiber infrastructure, it is imperative they have choices to offer a solution that can ***align first-build initiatives*** and costs across multiple network architectures, regardless of the environment.

These are just some of the options cable operators need to consider as they plan fiber deployments. While there may not be a one-size-fits-all answer, by reducing the labor costs for the fiber drop, having flexible, craft-friendly product choices and reducing the overall hurdles of bringing fiber into a new network, cable operators will increase their speed of deployment while lowering their total cost of network ownership. So formulate your game plan before setting out on your next fiber deployment to ensure you are ready for action.

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Tom Warren has over 10 years of experience as an Application Engineer for Clearfield. Tom provides customer support across the United States, listening to the needs of customers and aiding in the design of fiber termination and optical component systems that will meet their network needs. Tom also offers the Clearfield customer on-site training of fiber applications. His expertise includes in-depth knowledge of WDM's, FTTH and CATV Fiber Optic solutions, and trains extensively on fiber management basics and best practices. Tom is a sought-after speaker at many industry and telecom company events throughout the country.